

Table 2

Amino acid sequences of chelons which bind cadmium as well as mercury ions with high affinity. The residues which differ from the mercury specific chelon (see Table 1B) are shown with bold and underlining.

MTHCEEYSSLA**EH**KLKDVREKMADLARMETVLSELVCACHARKGNVSCPLIASLQGS**S**
GTHCEEYSSLA**EH**KLKDVREKMADLARMETVLSELVCACHARKGNVSCPS**AWSHPOFEK**
(SEQ ID NO:5)

MTHCEEASSL**VE**HKLKDVREKTMADLARMETVLSELVCACHARKGNVSCPLIASLQGS**S**
GTHCEEASSL**VE**HKLKDVREKTMADLARMETVLSELVCACHARKGNVSCPS**AWSHPOFEK**
(SEQ ID NO:6)

MTHCEEASSLA**EH**KLKDVRE**TM**ADLARMETVLSELVCACHARKGNVSCPLIASLQGS**S**
GTHCEEASSLA**EH**KLKDVRE**TM**ADLARMETVLSELVCACHARKGNVSCPS**AWSHPOFEK**
(SEQ ID NO:7)

MTHCEEASSLA**EH**KLKDVRE**QM**ADLARMETVLSELVCACHARKGNVSCPLIASLQGS**S**
GTHCEEASSLA**EH**KLKDVRE**QM**ADLARMETVLSELVCACHARKGNVSCPS**AWSHPOFEK**
(SEQ ID NO:8)

MTHCEEASSLA**EH**KLKDVREKMADLAR**VE**TVLSELVCACHARKGNVSCPLIASLQGS**S**
GTHCEEASSLA**EH**KLKDVREKMADLAR**VE**TVLSELVCACHARKGNVSCPS**AWSHPOFEK**
(SEQ ID NO:9)

MTHCEEASSLA**EH**KLKDVREKMADLAR**IE**TVLSELVCACHARKGNVSCPLIASLQGS**S**
GTHCEEASSLA**EH**KLKDVREKMADLAR**IE**TVLSELVCACHARKGNVSCPS**AWSHPOFEK**
(SEQ ID NO:10)

MTHCEEASSLA**EH**KLKDVREKMADLARMETVLSELVCACHARKGNV**PC**PLIASLQGS**S**
GTHCEEASSLA**EH**KLKDVREKMADLARMETVLSELVCACHARKGNV**PC**PS**AWSHPOFEK**
(SEQ ID NO:11)

MTHCEEASSLA**EH**KLKDVREKMADLARMETVLSELVCACHARKGNVSCPLIAL**L**QGS**S**
GTHCEEASSLA**EH**KLKDVREKMADLARMETVLSELVCACHARKGNVSCPS**AWSHPOFEK**
(SEQ ID NO:12)

Table 3

Hg-binding by Resin-tethered MerR and Chelon (SEQ ID NO:4)

Protein	moles Hg bound/mole protein
chelon	0.490
MerR	0.194

Table 4

Metal Binding by Chelon (SEQ ID NO:4)

Metal	moles bound/mole protein
arsenic	below limit of detection
cadmium	0.66
cobalt	0.79
copper	0.95
iron	below limit of detection
lead	0.93
nickel	0.75
zinc	0.38

Table 5A.

Primers for construction of pASK-MBD:

- 5 Product 1:
 Forward: 5' TGCGGCGGTCTCAAATGACACACTGCGAGGAGG 3' (SEQ ID NO:13)
 Reverse: 5' GCCTGAGGATCCCTGTAGTGACGCGATCAACGG 3' (SEQ ID NO:14)
- 10 Product 2:
 Forward: 5' CTACAGGGATCCTCAGGCACCCACTGCGAG 3' (SEQ ID NO:15)
 Reverse: 5' CTGTAGGGTCTCGGCGCTCGGGCAGGAAACATT 3' (SEQ ID NO:16)

Table 5B.

15 Sequence of pASK-MBD gene (SEQ ID NO:17)

ATGACACACTGCGAGGAGGCCAGCAGCCTGGCCGAACACAAGCTCAAGGACGT
 GCGCGAGAAGATGGCCGACTTGCGCGCATGGAAACCGTGCTGTCTGAACTCGT
 GTGCGCCTGCCATGCACGAAAGGGGAATGTTTCCTGCCCCGTGATCGCGTCACT
 ACAGGGATCCTCAGGCACCCACTGCGAGGAGGCCAGCAGCCTGGCCGAACACA
 AGCTCAAGGACGTGCGCGAGAAGATGGCCGACTTGCGCGCATGGAAACCGTG
 CTGTCTGAACTCGTGTGCGCCTGCCATGCACGAAAGGGGAATGTTTCCTGCCCG
 AGCGCTTGAGCCACCCGAGTTCGAAAAATAA